

Ohio Mycological Bulletin

(Nos. 1 to 12)



VOLUME I

1903



W. A. KELLERMAN, Ph. D.
Ohio State University

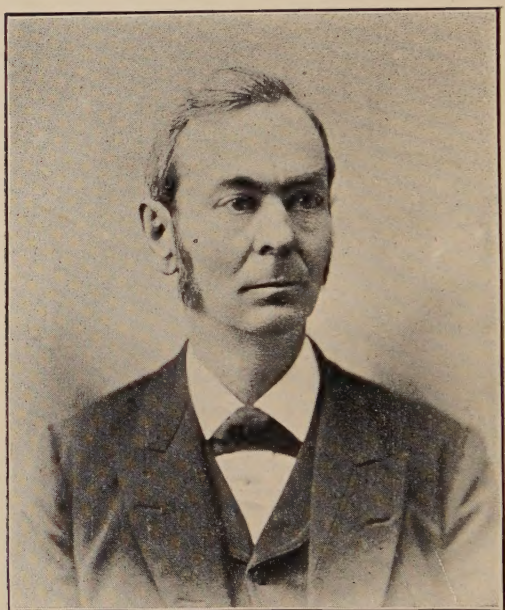


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PROFESSOR CHARLES H. PECK,
State Botanist of New York, and eminent American Mycologist.

Ohio Mycological Bulletin No. 1

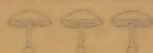
H. A. Kellerman, Ph.D., Ohio State University.

Columbus, Ohio, March 7, 1903.

INTRODUCTORY.—Many of the Mushrooms, Toadstools, Moulds, Puffballs, Coral-fungi, etc., are conspicuous objects, which are more retiring, often very small, and seen only when search is made. It is not until one heeds the various forms, seeks out and examines the kinds, that it is realized what a large number may occur in a small area of favorable country.

Not the least interesting fact in connection with these various and beautiful plants, is that they are mostly edible, and some are poisonous. A few kinds however are poisonous, as the *Amanita* and *Clavaria* and other attractive plants. It is especially necessary to be on guard against eating the edible and avoid the poisonous kinds. Do not trust the appearance of an individual, but those who have already heard of the poison of the *Amanita* are familiar with it.

Those who are willing to join in this work, who make sufficient interest in the Toadstools and Mushrooms to wish to know more about them, who may desire perhaps now and then to send specimens, or who wish the *Bulletin*—which will be issued from time to time—will be enrolled as members of the Ohio Mycological Club. Fee, 10 cents.



WORDS EXPLAINED.—The word fun-gus (pronounce the second syllable as in the word "bo-gus") is used to indicate any of the kinds mentioned above; in fact *fungi* (pronounced fun-i, the i is long) include all these and other species also, as the Moulds, Moulds, Yeasts, Smuts, Peach-curl, Apple-scab, Bacteria, etc. We will generally say *fun-gus* (pl. *fun-gi*) but the reader may say, if preferred, *Mushrooms* and *Toadstools*. Do not imagine that only the kinds good to eat are *Mushrooms*, and the bad species *Toadstools*—though some people try to use the words in this way only: the two words may be used interchangeably and properly signify one and the same thing. The *Mushrooms* or *Toadstools* with various other conspicuous species are called the *Humus Fungi*, this is by way of contrast to the less conspicuous, often microscopic forms, as Moulds, Bacteria, Leaf-spot fungi, etc.



KINDS OR GROUPS OF FUNGI.—Collect some fun-gi (or Mushrooms) and after carefully inspecting them decide to which of the following group each belongs; (make several similar lessons for practice).

1. **GILL-FUNGI** (the botanical name is *Agar-i-ca-ce-ae*)—having flat plates called lamel-lae or gills, as in figure 1.
2. **PORE-FUNGI** (or *Poly-po-ra-ce-ae*)—with pores in place of gills, as shown in figure 2.
3. **SPINE-FUNGI** (or *Hyd-na-ce-ae*)—having soft spines instead of gills or pores; figure 3.
4. **CORAL-FUNGI** (*Cla-var-i-a'-ce-ae*)—branching or shrub-like in form, as shown in figure 4.

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Ohio Mycological Bulletin No. 1

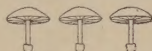
W. A. Kellerman, Ph.D., Ohio State University,

Columbus, Ohio, March 7, 1903.

INTRODUCTORY. — Many of the Mushrooms, Toadstools, Morels, Puffballs, Coral-fungi, etc., are conspicuous objects. Others are more retiring, often very small, and seen only when search is made. It is not until one heeds the various forms, seeks out and enumerates the kinds, that it is realized what a large number may occur in a small area of favorable country.

Not the least interesting fact in connection with these curious, often beautiful plants, is that they are mostly edible, palatable, even delicious. A few kinds however are poisonous. It is interesting to study these attractive plants; it is really necessary to do so if one wishes to use the edible and avoid the poisonous kinds. To introduce this study and to aid those who have already begun is the purpose of the OHIO MYCOLOGICAL BULLETIN.

Those who are willing to join in this work, who have sufficient interest in the Toadstools and Mushrooms to wish to know more about them, who may desire perhaps now and then to send specimens, or who wish the BULLETIN — which will be issued from time to time — will be enrolled as members of the OHIO MYCOLOGICAL CLUB. Fee, 10 cents.



WORDS EXPLAINED. — The word fun'-gus (pronounce the second syllable as in the word "bo-gus") is used to indicate any of the kinds mentioned above; in fact *fungi* (pronounced fun'-ji, the *i* is long) include all these and other species also, as the Moulds, Mildews, Rusts, Smuts, Peach-curl, Apple-scab, Bacteria, etc. We will generally use the word fun-gus (pl. fun-gi) but the reader may say, if preferred, Mushrooms and Toadstools. Do not imagine that only the kinds good to eat are *Mushrooms*, and the bad species *Toadstools* — though some people try to use the words in this way only; the two words may be used interchangeably and properly signify one and the same thing. The Mushrooms or Toadstools with various other conspicuous species are called the **HIGHER FUNGI**; this is by way of contrast to the less conspicuous, often microscopic forms, as Moulds, Bacteria, Leaf-spot fungi, etc.



KINDS OR GROUPS OF FUNGI. — Collect some fun-gi (or Mushrooms) and after carefully inspecting them decide to which of the following group each belongs; (take several similar lessons for practice).

1. **GILL-FUNGI** (the botanical name is A-gar-i-ca'-ce-ae) — having flat plates called la-mel-lae or gills, as in figure 1.
2. **PORE-FUNGI** (or Pol-y-po-ra'-ce-ae) — with pores in place of gills, as shown in figure 2.
3. **SPINE-FUNGI** (or Hyd-na'-ce-ae) — having soft spines instead of gills or pores; figure 3.
4. **CORAL-FUNGI** (Cla-var-i-a'-ce-ae) — branching or shrub-like in form, as shown in figure 4.

5. CARRION-FUNGI (Phal-la'-ce-ae) — as represented in figure 5 and having a disgusting odor.
6. PUFF-BALLS (Ly-co-per-da'-ce-ae) — globular, oval, or pear-shaped, when old filled with powder (spores); figure 6.



Fig. 1.
Gill-fungus.



Fig. 2.
Pore-fungus.



Fig. 3.
Spine-fungus.



Fig. 4.
Coral-fungus.

7. EARTH-STARS (Ly-co-per-da'-ce-ae) — these are peculiar small Puff-balls called *Ge'-as-ters*, which means Earth-stars, shown in figure 7.
8. CUP-FUNGI (Pe-zí-za'-ce-ae) — more or less cup-like in shape, usually small; shown in figure 8.
9. MO-RELS (Hel-vel-la'-ce-ae) — peculiar shape as shown in figure 9.



USEFUL BOOKS. — Three illustrated Manuals may be recommended to those who are old enough or have experience enough to use them to advantage. Of course everyone can profit by inspecting the excellent pictures even if the text seems too difficult.

The plainest and perhaps most usable Manual for beginners is Nina Marshall's *Mushroom Book*. Price \$3.00. The size is 7 x 10 inches and one inch thick. Pages 167. It has an extended and fully illustrated key



Fig. 8
Cup-fungus.



Fig. 5.
Carrion-fungus.



Fig. 9.
Morel.



Fig. 6.
Puff-ball.



Fig. 7.
Earth-star.

for determining the families, genera and species. There are many full-page plates; some are half-tones; many colored plates.

Atkinson's *Mushrooms Edible and Poisonous* is an admirable book; written by a specialist yet may be used satisfactorily by the general student. The book is 6½ x 9½ inches, 1½ inch thick. Pages 322. Price \$3.00. Only a few of the plates are colored, but the numerous half-tones are fine. Some sample illustrations from this book will be shown in the next BULLETIN.

A larger and more expensive book is McIlvaine & Macadam's *One Thousand American Fungi*; everyone should have access to it. Price

\$5.00. It is $7\frac{1}{2} \times 10\frac{1}{2}$ inches, and 3 inches thick. Pages 729. There are figures of 278 species. Many of the plates are colored. This book especially (and indeed all of the above) should be purchased by your Public Library; and it is hoped too that many books will be ordered by the members of the Club.

It has been arranged to give the MEMBERS of the OHIO MYCOLOGICAL CLUB a considerable rebate on all or any one of the above, provided payment is sent to Mr. L. S. Wells, bookseller, Columbus, Ohio. He will deliver the books, prepaid, as follows: on the *Mushroom Book* (\$3.00), a rebate of 20 cents; on *Mushrooms Edible and Poisonous* (\$3.00), a rebate of 40 cents; and on *One Thousand American Fungi* (\$5.00), a rebate of 20 cents.



SUGGESTIONS TO TEACHERS.—It is urged that every teacher of Botany devote *several lessons* at regular intervals in the course, to the MUSHROOMS. Have the pupils bring in ample quantity of all kinds that can be found—unfortunately they are not so abundant in early spring as later—and in the class room sketch the plants and name the parts; if feasible, use water-colors, and paint the figures true to nature; contrast the several species found, take full and neat notes including the exact habitats, it being desirable to state always the environment of the specimen—woods, grove, roadside, pasture, on wood, stump, rotten logs, in sandy or wet soil, in shade, etc. Then try to use the keys or apply the diagnoses that will be given in successive numbers of the BULLETIN or in available books. Discuss the mode of life. By this plan *real* botany is possible and worth the while! If any good paintings of Mushrooms are kindly sent to the State University, they will be gratefully received, and awarded a permanent place in the Botanical Department.



In case teachers wish to supply pupils with the BULLETINS for regular class work, it might be preferable to send the requisite number of copies in one package to the teacher's address instead of mailing them separately to the several pupils.

NATURE STUDY.—Those live teachers who are attempting to cultivate and strengthen the child-mind in its sympathy with nature, invoking her aid in their sacred charge, whether working in primary room or grammar grade, are invited to use the Ohio Mycological Bulletin, if perchance it may assist in such important work. The child will gladly study these interesting plants.

“And Nature, the old nurse, took
The child upon her knee,
Saying: ‘Here is a story book
Thy Father has written for thee.’”



GILL-FUNGI.—These Mushrooms form an exceedingly large group. They are also called Ag'-ar-ics, an English word formed from A-gar'-i-cus which is the botanical (or Latin) name and the one used long ago for a genus (that is, a group of similar species). These Mushrooms bear “spores” on the surface of the gills. *Spores* might be called microscopic seeds; they are simpler in structure but correspond in function to seeds in the higher plants. Curiously enough when a sufficient quantity of the spores is accumulated so that the mass is visible, it is found that the color may be either *white*, *brown*, *rusty* (or *ochre-like*), *pink*, or *black*. We must determine the color of the spores in order to classify the kinds and to find the correct name in the books on Mushrooms. Therefore the necessary thing to do as soon as a fresh specimen is found, is to make a “spore-print,” as the collected mass of spores is called. How to do this will be fully explained and illustrated in BULLETIN No. 2.

THE NEXT BULLETIN. — If prompt and generous support comes it will be possible to issue the second Bulletin soon. Your name in the list of MEMBERS of the OHIO MYCOLOGICAL CLUB will indicate that your fee (10 cents) has been received. Please advise others to join with us in this undertaking. Every one interested in the Mushrooms or other plants, or desirous of receiving the Bulletin, even if not residing in Ohio, is eligible to membership. You are invited to forward your name with accompanying fee of 10 cents. Do not fail to ask questions if any come to mind. Directions for collecting and studying will be given in future numbers, also illustrations and descriptions of various species, perhaps some keys for determining species, notes on cooking mushrooms, and many interesting mycological topics.



OTHER SPECIMENS. — It must not be supposed that, because special attention is called to Mushrooms, we are neglecting other groups of the Ohio plants. We desire to get Herbarium specimens of every species from every County in the State. We have a good representation from a few counties, a fair amount from many, but a very small number of specimens from the majority of Counties — though the State Herbarium now contains over 20,000 mounted sheets of the Vascular Cryptogams and Phanerogams alone. We want more Algae, Fungi, Lichens, Liverworts, and Mosses, as well as other plants.



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Ohio Mycological Bulletin No. 2

W. A. Kellerman, Ph.D., Ohio State University,

Columbus, Ohio, March 25, 1903.

FELICITATION.—The response to the proposition to form a Mycological Club has been most gratifying and several Bulletins can now be promised. Thanks are extended to the many professional botanists and eminent mycologists who have joined the enterprise. But it is noted also with special pleasure that some very young people and some very old people (old in years only, not in spirit and sympathy) are on the membership roll. The third Bulletin will give additional names of members; all can not be recorded in the present issue.

Promise is again renewed that the Bulletin will be true to its original purpose, namely, to try to help beginners, pupils, students, and amateurs; to aid in systematically observing and studying the Mushrooms, both for the pleasure of knowing more about our beautiful world, and for the purpose of enjoying the edible properties of the plants in question. I invite your assistance in still greatly extending the membership. The fee is only 10 cents, and this pays for all the Bulletins to be issued this season.



BOTANICAL NAMES.—Let beginners and those who have not studied botany, observe that in scientific language the principal name, or the name of the ge'-nus, is placed first, followed by the name of the species (kind). For example, we say Mor'-chel'-la es-cu-len'-ta, Mor'-chel'-la con'-i-ca, Mor'-chel'-la an-gus'-ti-ceps, or Quer'-cus al'-ba, Quer'-cus ru'-bra, Quer'-cus vel-u-ti'-na, instead of Edible Morchella (or Edible Morel), Conical Morel, Narrow-head Morel, or White Oak, Red Oak, Black Oak.

They are as simple and as easily learned as the English or common names, and ought to be more generally used. The form of the word is Latin—which is the universal language among educated people. Many plant names in universal use are the Latin, latinized, or scientific names, as Geranium, Hydrangea, Phlox, Deut'-zi-a, Ge-as'-ter, Bo-vis'-ta; and some are the anglicised Latin names, as Rose, Saxifrage, Borage, Thyme, Mint, Ag'-ar-ic.



THE MORELS, HONEY-COMB FUNGI, OR MORCHELLAS.—

It is proper to say Mor'-el, Mo-relle', or Mor'-chel'-la (pron. mor'-kel'-la). These are among the earliest mushrooms of the season and are so peculiar that no one could mistake them. Besides, all of them are delicious; none are injurious—I make this emphatic because some one recently said he thought one kind was poisonous. The figures on the following pages show the general appearance of the plants. They are reproduced by the kind permission of Professor Atkinson from his book on *Mushrooms Edible and Poisonous*, and are a fair sample of the numerous excellent figures in that book which I hope many will be able to get and use.

I propose that we make these fungi our first study of the season, so far as the members can take opportunity to observe them. Some botanists say there are many species (kinds) and call them by names, as given below; arranging them in two groups according to the mode of

attachment of the top, or cap, to the stem. Cut vertically through the middle of the specimen and its structure will be plainly seen.

1. LOWER MARGIN OF CAP, OR PI'-LE-US, UNITED TO THE STEM.

Mor-chel'-la es-cu-len'-ta — with rounded or oval cap, or pi'-le-us.

Mor-chel'-la con'-i-ca — with conical cap.

Mor-chel'-la cras'-si-pes — like above but stem nearly as wide as cap.

Mor-chel'-la de-li-ci-o'-sa — cap cylindrical or oblong, plants usually small.

Mor-chel'-la an-gus'-ti-ceps — cap narrow, scarcely broader than stem.

2. LOWER MARGIN OF THE CAP FREE FROM THE STEM.

Mor-chel'-la sem-i-lib'-er-a — cap free from the stem to the middle.

Mor-chel'-la bi'-spo-ra — cap free from the stem to the top.

Mor-chel'-la punc'-ti-pes — stem with little scales or conical points.

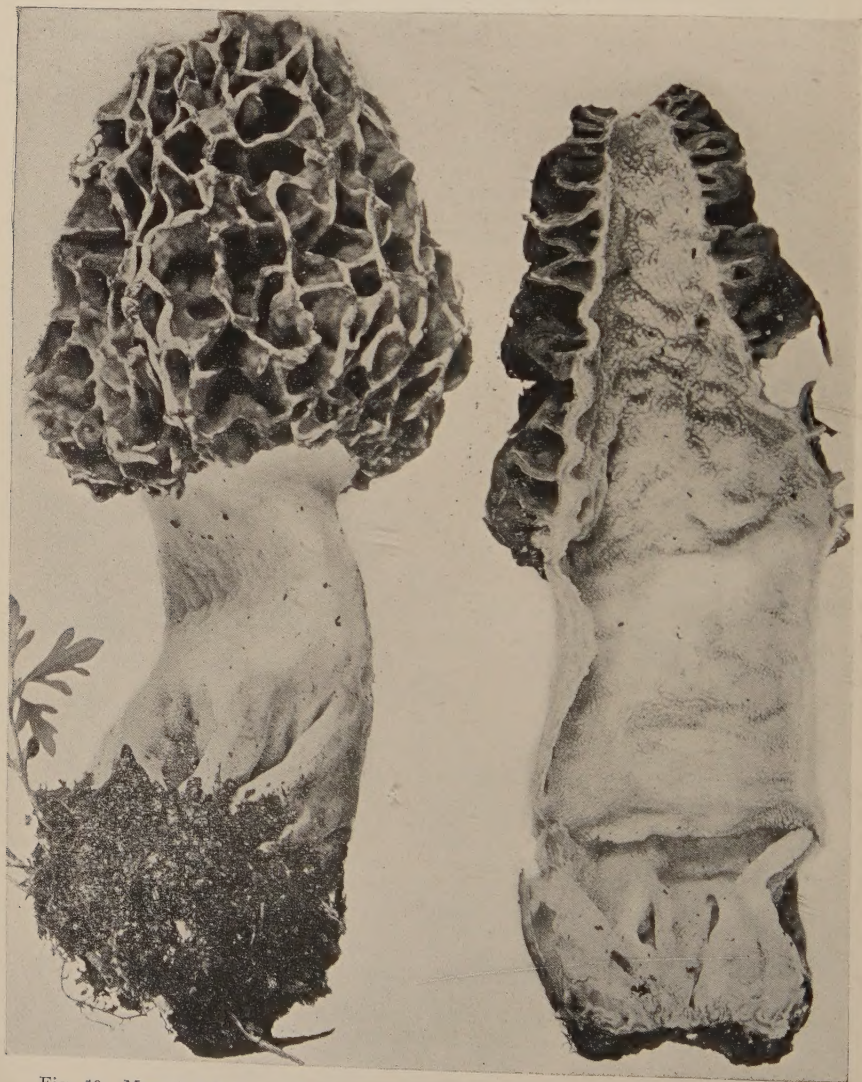


Fig. 10. Mor-chel'-la es-cu-len'-ta or Common Mo-rel'. Edible. From Atkinson's *Mushrooms Edible and Poisonous*. (Figure copyright.)

Professor Morgan writes as follows in the Journal of Mycology, 8:49-50, June 1902: "With plentiful showers in the springtime the Morels grow abundantly in my vicinity. I have observed them critically for many years and have taken much pains to recognize as many as possible of the species that have been described. I invariably arrive at the same conclusion: that there are but two species. In the same spots the species vary much in form, size and color from year to year in accordance with the difference in warmth, sunshine and shower. . . .

"My bundles of specimens gathered in different years bear a variety of labels as I look them over, but they are all assembled in my mind under two names: The first is *MORCHELLA ESCULENTA*, the second *MORHELLA PATULA*; in the first the pileus is wholly adnate to the apex of the stipe; in the second the lower part of the pileus is separate from the stipe."

As to *cooking*, my best adviser says; "Cook in the various ways in which you cook oysters."



Fig. 11. *Morchella conica* or Conical Morel. Edible. From Atkinson's *Mushrooms Edible and Poisonous*. (Figure copyright.)

HOW TO SEND SPECIMENS.—Pack snugly with abundant tissue paper or cotton in a pasteboard box of suitable size. By following the hint here given on the margin (folding on the dotted lines) a box may be made from stiff pasteboard in case an empty one is not at hand.

It should be filled completely and securely tied. Postage on dried plants is 1 ct. per oz.; on living plants, 1 ct. per 2 oz. Put no writing on the inside, but numbers, names, dates, localities, or the usual data on botanical labels, are permissible. The name of the sender and postoffice should always be written on the cover.

Specimens should always be numbered. If your first package contains specimens 1, 2, 3, then number the specimens in the next sending 4, 5, etc. Never duplicate the former numbers and there will be no confusion in discussing the specimens.

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Ohio Mycological Bulletin No. 3

W. A. Kellerman, Ph.D., Ohio State University,

Columbus, Ohio, April 18, 1903.

EDITOR'S NOTE. — Grateful acknowledgement is again made for the hearty co-operation in extending the membership of the the OHIO MYCOLOGICAL CLUB; for the interest manifested in the BULLETIN; the correspondence already elicited in connection with fungi, interesting, edible or otherwise; and the specimens sent for illustration of observations made, or for inspection. Some of the correspondence and interesting notes will appear from time to time in the Bulletin. This is a phase of the work not particularly mentioned hertofore, yet it is hoped that it will prove very interesting and profitable.

I desire to say that receipt of Bulletins, subsequent to No. 1, indicates that you or some friend has paid the fee of 10 cents. The Bulletins will be mailed to *no one unless this amount has been paid*. From time to time the additions to the membership roll will be printed. Very frequently it will be several days, may be five to ten, before Bulletins can conveniently be sent after the request has been received. It is hoped that the number of mistakes on our part will be reduced to a minimum; please remind us at once if delinquency occurs.



SOME STUDY NECESSARY. — One can not positively know the kinds of mushrooms without some close scrutiny or careful study. There are so many kinds, and often they differ so little from each other, that thorough acquaintance is indispensable to a correct judgment in regard to them. No friend or instructor can enumerate the points for you, so that off-hand you may then certainly know the mushrooms and safely separate the good from the bad. But by carefully noting all the characters of any species that you may find—color, texture, size, shape, and other points of its structure, where it grows, any peculiarities in its mode of development; then studying another kind in the same manner; you will during the season learn really to know quite a number of species. If this plan is continued from year to year you ought to become acquainted with all the conspicuous kinds that occur in your neighborhood, and know them better than many botanists do. If an attempt is made to record observations and make sketches (perhaps using water colors), much more pleasure and profit will be realized. Some hints or directions will be given in the next Bulletin.



PARTS OF A MUSHROOM. — With specimens before you proceed with a methodical inspection, using the accompanying illustration (Fig. 12), to learn the names of the parts.

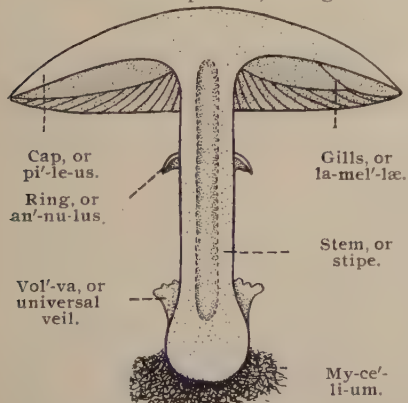


Fig. 12. Diagram showing parts of a Toadstool.

Cap, or pi'-le-us—This is the upper portion, more or less expanded, usually regular in shape, but sometimes various; its purpose is to bear the *spores*, or microscopic bodies for reproducing the species, comparable therefore in function to seeds of our common plants.

Gills, or la-mel'-lae.—These are the thin plates on the under side of the cap, differing in shape, mode of attachment, color and consistency in different species. In the Pore Fungi and in the Spine Fungi they are replaced by pores and soft spines respectively. On the surface of the gills, the tubes, and the spines the spores are produced.

Stem or Stipe.—This varies in length, shape, diameter, color, etc., in the different species; it may be solid and firm, or the interior may be soft, or almost hollow being occupied by a very loose tissue (when it is said to be "stuffed"). The stem may be attached to the middle of the cap, or near one side; in some species it is entirely absent.

Ring or an'-nu-lus.—When the mushroom is in an early stage of development the gills are close to the stem, and a membrane or veil is continuous over the cap, uniting it with the stem. The remains of this "partial veil," as it is called may be seen in some of the species in the form of a collar around the stem, and it is called the *ring or an'-nu-lus*.

Vol'-va.—In some species, especially the Volvarias and the Amanitas (which include poisonous species), there is a "universal veil," as it is called, or *vol'-va*, that encloses the young stem and cap; but these push up breaking through the top as they develop. The volva may then be found as a cup-like portion at the base when the mushroom is carefully dug up, but it is not always conspicuous.

My-ce'-li-um (pron. mi-se'-li-um).—The mass of whitish threads that attach the Mushroom to the soil or rotten wood, etc., is called the my-ce'-li-um. It is the vegetative part of the plant, i. e., these threads take up the nourishment from the decaying organic matter on which this group of plants. (the fun-gi) feed.

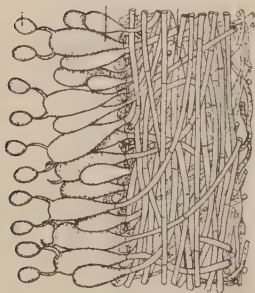


Fig. 14.



Fig. 13.



Fig. 15.

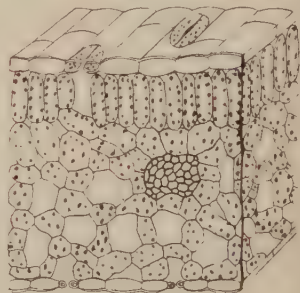


Fig. 16.

Fig. 13. Gill slightly magnified.
Fig. 14. Portion of gill highly magnified.

Fig. 15. Section of a stem showing cellular structure.
Fig. 16. Section of a leaf showing cellular structure.

STRUCTURE OF A MUSHROOM.—For pupils in schools or others who have a large microscope at hand, and to satisfy older people who want to know, let me say that with the aid of figures 13 and 14 some idea of the minute structure of Mushrooms may be obtained. The whole mass is made up of tiny tubes, elongated *cells* the botanist calls them. In these is the clear, slightly granular, semi-fluid *living substance* which is known by the name of *pro'-to-plasm*. The fact that this is the substance in which the life processes are manifest makes its structure and behavior of the most thrilling interest to the real student.

All plants have essentially this same minute structure—but usually the *cells* are very slightly elongated or even globular though many sided from mutual pressure. To make this matter clearer two figures are here introduced to show cells from a stem (Fig. 15) and from a leaf (Fig. 16). Within the cell wall (which is made up of a substance that the chemists call *cel'-lu-lose*) may be seen living, working, growing substance, namely the *pro'-to-plasm*. Some vegetable cells (and all cells in the animal tissues.), have no cellulose walls.

If you would know how *spores are borne*, and desire to know the language that botanists use in describing these structures, consult figure 13 which shows a section though a gill moderately magnified, and figure 14 which shows a small portion of the surface layer of the gill highly magnified, showing the spores.

The *spores are thrown down* when ripe—so it is possible to obtain a "*spore print*;" it is desirable to have a quantity of the spores in order also to determine their *color*. Hence observe the next paragraph.

Spore-Print.—To determine the color of the spores in any of the Gill-Fungi, select a specimen that is not too old; it is best if it has just



Fig. 17. Spore Print. From Atkinson's Mushrooms Edible and Poisonous.

expanded so as to expose the gills. Remove the stem close to the cap, or umbrella-like top, that bears the gills, and place it gill-side down on a sheet of paper, leaving it several hours or over night. Radiating lines of spores will be thrown down on the paper—having the appearance shown in the adjoining figure (17). It is best to catch spores on both white paper and black or dark-colored paper; spores if they happen to be white can scarcely be seen on white paper.



Fig. 18. Delicious Morel. Mor-chel'la de-li-ci-o'-sa. Edible. From the Nina Marshall Mushroom Book, by kindness of publishers, Doubleday, Page & Co.

Morels.—Thanks are extended to members who have kindly sent specimens of *Morels*; they were, all the common kind that may be called *Morchel-la-es-cu-len'-ta*. It is hoped that some one will find specimens of *M. semi-i-lib'-er-a* and *M. bi'-spo-ra*. An additional figure is presented, and credit given under the same.



FROM CORRESPONDENTS.—Mr. E. V. Louth reports for Ashtabula: "*Morchella conica* as a variety, usually in solid soil; *M. esculenta* in more open places in loose soil; *M. semilibera*, found quite often has when cooked a somewhat astringent taste and not juicy; *M. bispora* found twice, also a freak, with button top, smooth and mellow." "Mr. Wm. H. Spencer says fishermen bring to the market in Sandusky, *Morels* which they collect on Cedar Point, edge of vegetation in sand close to the Lake Erie Beach;" this is an unusual and interesting locality for this species.



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Ohio Mycological Bulletin No. 4

W. A. Kellerman, Ph.D., Ohio State University,

Columbus, Ohio, May 12, 1903.

ACKNOWLEDGEMENTS.—The still growing membership roll is very gratifying, and hearty thanks are extended to all who have taken such kindly interest in the matter. I am indebted to many persons for charming specimens; those sent in by the Helmick boys furnishing the photographs for one of the cuts of *Pe-zí'-za re-tic-u-la'-ta*,—the other cut of this species being the specimens collected by E. A. Sanders. Prof. Schaffner and Assistant Jennings collected the little *Mor-chel'-las* shown on this page. Messrs. Jennings and Sanders brought the fine large *Hel-vel'-las*, that is to say *Gy-ro-mí'-tra brun'-ne-a*, from which the cut of reduced figures given on page 16 was prepared.



Fig. 19. *Mor-chel'-la sem-i-lib'-er-a*. Free-cap Morel. Edible. Plants shown the natural size.

MYCOLOGICAL EXHIBITION. — Friday afternoon, May 22, from 2 to 5 o'clock, there will be an Exhibition of Mushrooms in the lecture room of the Botanical Building, Ohio State University, to which the public is cordially invited. A short lecture will be given to amateurs at 4 o'clock. Members of the Ohio Mycological Club living at, or not too distant from Columbus, are cordially invited to attend, but this notice is given to all readers of this Bulletin as a suggestion, which perhaps in some cases might be carried out by members in their own communities. If one or two undertake an exhibition, at some stated time, of what might be found in their region, cordial assistance doubtless would be given by the teachers of the public schools, many pupils and other enthusiasts.

If there is a local Horticultural Society, Farmers' Club, or Floricultural Association, such an organization might lend assistance or even take the initiative in such an exhibition. Increasing the interest in Mycology and disseminating information leading to more extended study and wider use of Mushrooms, would certainly be some of the valuable results of such an undertaking.

It would perhaps also be an opportune time to make the *Bulletin* known to others, "price 10 cents," through the kind efforts of present members. Moreover the request is made that as far as convenient some specimens of Mushrooms be sent for the May 22d exhibition at Columbus, for which the editor extends thanks in advance to any contributing members.



THE FREE-CAP MO-REL'. — The Morel shown in fig. 19 is called Mor-chel'-la sem-i-lib'er-a — the second, or specific name suggesting its distinguishing character, namely, that the *lower portion of the cap is free from the stem*.

In the common Morels, those forms called by botanists Mor-chel'-la es-cu-len'-ta, Mor-chel'-la con'-i-ca and Mor-chel'-la de-li-ci-o'-sa, (shown in figs. 10, 11 and 18), also Mor-chel'-la cras'-si-pes (which is much like the foregoing, but the cap is equal in width to, or scarcely broader than the granular irregularly furrowed stem — *cras'-sus* meaning broad), the cap is *ad'-nate*, that is wholly attached to the stem, therefore not having a free margin below; in other words the cap is bell-shaped.

A form from Michigan recently described by Prof. Peck, called Mor-

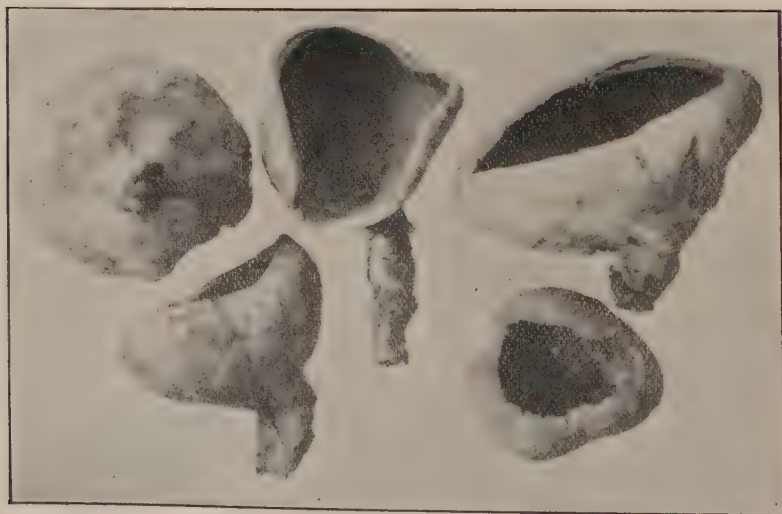


Fig. 20. Pe-zi'-za re-tic-u-la'-ta. Reticulate Peziza. Edible. Nearly the natural size. Same species as shown in Fig. 21.

chel'-la punc'-ti-pes (the Latin word *pes* means foot or stem), much like the Free-cap shown in fig. 19, is said to have a squam'-u-lose stem, *i. e.* covered by little scale-like bodies or points. Then another free-cap form is the Mor-chel'-la bis'-po-ra—which would require the use of a microscope for positive identification, since its spores are two in a sac instead of eight as in all other forms.

The Sem-i-lib'-er-a Morel is small, and while edible is not to be compared with the larger tender forms as the *M. esculenta*, *M. crassipes*, and *M. conica*.



PE-ZI'-ZA FAMILY.—This group is called Pe-zi-za'-ce-ae by the botanists, and for a distinctive common name we will say Pe-zí'-zas. It is a large group but well illustrated by figs. 20 and 21, which show that the form is in general cup or saucer shaped. The hy-me'-ni-al layer—*i. e.* the layer which bears the spores—is the more or less colored portion lining the cup within.

In Pe-zí'-za re-tic-u-la'-ta the color within is brown and the general form may be as regular as those shown in fig. 20, but often they are not so uniform in size and very irregular in shape; Fig. 21 shows such common forms of the same species. Dr. E. J. Durand says that he received a specimen from Illinois that was 15cm. broad (6 inches).

The Pe-zí'-zas are very satisfactory for table use but can hardly be placed on a par with the Morels and Helvellas. The young fresh specimens only ought to be used.



HEL-VEL'-LA FAMILY.—This group, called in botanical language Hel-vel-la'-ce-ae, contains such striking forms as the Morels, already figured in Bulletin No. 3, and again on page 13; also other species of which those called Gy-ro-mí'-tra are at once to be recognized from the figure herewith given (Fig. 22). The cap which is covered by the hymenial, or spore-bearing layer, is of peculiar lobed or irregular form, the surface covered with gyrose wrinkles, whereas the *Morchellas* have pits formed by longitudinal and transverse wrinkles. The Gy-ro-mí'-tra brun'-ne-a shown in Fig. 22 has a cap of red-orange color, 3d shade, of Prang's system. It is quite variable in form as the illustration shows. No edible fungus perhaps is superior to this. It may be searched for in such localities as produce the Morels—where there are decaying logs and stumps, and the soil is rich in such organic matter.

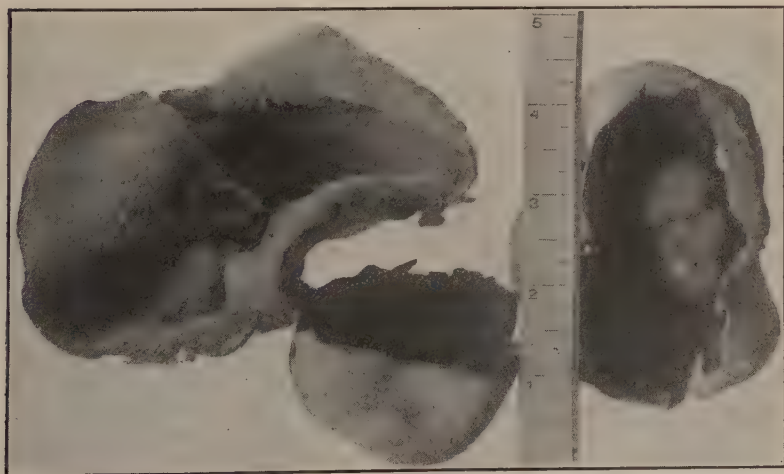


Fig. 21. Pe-zí'-za re-tic-u-la'-ta. Reticulate Peziza. Edible. Typical form of the species; the scale represents inches.

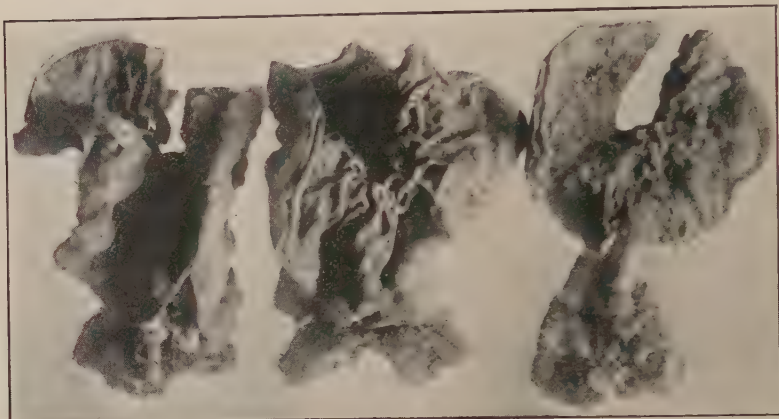


Fig. 22. Gy-ro-mi'-tra brun'-ne-a. Gyromitra or Helvella. Edible. One-quarter to one-half natural size.



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Ohio Mycological Bulletin No. 5

W. A. Kellerman, Ph.D., Ohio State University,

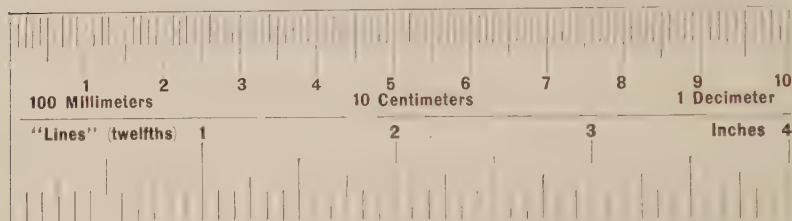
Columbus, Ohio, June 12, 1903.

SPECIMENS — Many interesting Mushrooms have been brought to our notice and thanks are extended to those who have sent specimens. It must be said, by way of suggestion, that in some cases insufficient care is taken to get complete specimens. They ought never to be broken off leaving half the stem, nor even severed at the surface of the soil or substratum on which they grow; the underground or concealed portion should also be carefully secured. This often affords indispensable characters for correct identification, especially so when the presence or absence of a volva is to be determined. For study a large number of specimens are needed; they should illustrate all the characters that the species shows in its different stages of development of the fruit — fruit I say because the so-called Mushrooms and Toadstools are only the *fruiting* stage of the plant, the vegetative portion being the (whitish and mostly concealed) mass of threads called *my-ce-li-um*.



Fig. 23. Co-pri'-nus co-ma'-tus. Shaggy-mane. Edible. Belongs to the black-spored Gill-fungi. The gills and cap dissolve into an inky fluid at maturity. Various stages shown in the illustration. From photo by Prof. Schaffner.

THE EXPERIMENT SUCCESSFUL—Notwithstanding protracted dry weather a fairly satisfactory Mushroom exhibition was realized May 22 as per previous notice. About sixty species were shown, perhaps half of them fresh; many of these being edible kinds. With the numerous class charts and colored plates used in the regular college work, an exhibit was made that seemed to be very satisfactory to the large crowd of visitors. Repetition when weather is not adverse may be expected.



Scale for convenient measurement.

PUFF-BALL FAMILY—The name for this group is *Ly-co-per-da'-ce-ae*; which is formed from *Ly-co-per'-don*, the name of one of the genera. Puff-balls are familiar objects, and numerous species are to be found in every locality. They are edible when young and fresh, though only the larger kinds would be used. Fig. 24 shows the Giant Puff-Ball growing in a grassy plot, from a photograph taken by Prof. Schaffner. The myriads of spores escape as a cloud when the plant is ready to be stepped on. When slicing the peeled specimen for table use the flesh should be white; if dark or changing from the white color it must be discarded.



Fig. 24. *Bo-vis'-ta gi-gan-te'-a*. Giant Puff-ball. (By various authors it is also called *Ly-co-per'-don*, or *Cal-va'-ti-a*.) Very large, 8 or 10 to even 20 inches in diameter, weighing several pounds, depressed-globose, white or whitish, becoming discolored with age. Edible when young.

A NOTE FOR STUDENTS—Space precludes the possibility of giving here directions for exhaustive study of the fleshy fungi (A-gar-i-cá-ce-ae); therefore a separate slip has been prepared for systematic study and record of the characters of these plants. A package stapled to a stiff back for convenient field use will be sent to those who furnish address, with five cents, or two two-cent stamps. A sample for inspection may be obtained upon request accompanied by a 1-cent stamp.

A GOOD PLACE FOR MUSHROOMS—At Sandusky, Ohio, there is a lot, several acres in extent, the former site of a cooperage plant, largely recovered from Sandusky Bay by filling up with saw-dust and lumber-waste such as small pieces of slabs, sticks and bark. This wooden soil is several feet thick and all the time moist below the surface. Therefore it is an excellent place for the plants in which we are interested. Wm. H. Spencer tells me that last year he collected here "forty-three varieties, mostly Agaricaceae, one Clavariaceae, two Phallaceae, several Lycoperdaceae and Polyporaceae."

Those are fortunate who have such a variety of favorable localities as in the region of Sandusky. Cedar Point is not to be forgotten in this connection. It is a narrow, wooded sand-spit about seven miles long, the famous pleasure resort located near the northwest end, Southeast from this place, one mile, is located the fine Lake Laboratory, just completed, where a summer school in Botany (and Zoology) is carried on by the Ohio State University. It may not be amiss to state that courses of instruction in Mushrooms and other groups of plants are this season offered to the choice of everybody, the work beginning June 29th and continuing six weeks. Anyone interested should write to the Ohio State University for the Circular which gives details of this Biological Laboratory, the courses of study, the charge for tuition, etc.



Fig. 25. Myr-i-o-sto'-ma col-i-for'-mis. Pepper-box Earth-star. Differs from the common Earth-star (Ge-as'-ter) in having several openings through the upper portion of the inner wall for the escape of the spores. Rarer than the Geasters; the latter have but one mouth at apex. (Greek words—*Myrioi* means many, and *stoma* signifies mouth.)

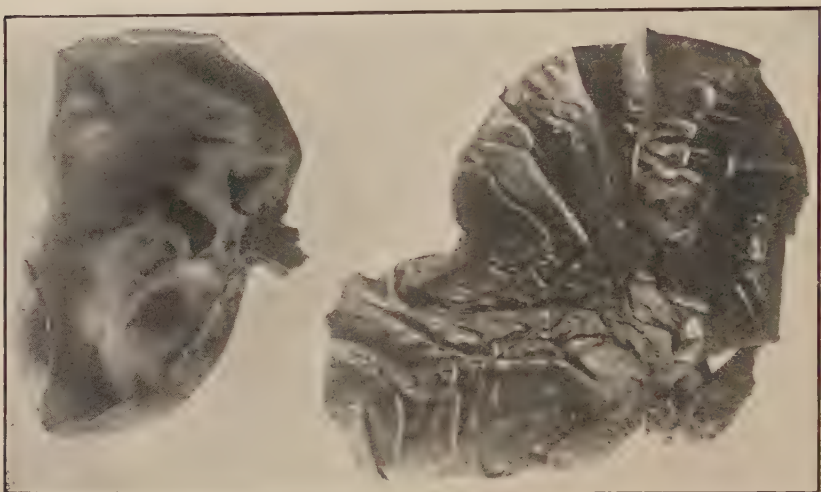


Fig. 26. Hir-ne-o'-la au-ric'-u-la-ju'-dae. Jew's Ear. Belongs to the Trembling Fungi, or *Tremela'-ce'-ae*, so-called because of their gelatinous consistency. They shrivel when dry, reviving when moistened. The Jew's Ear is rather common, brown or blackish, fuzzy-hairy, but not so tender and palatable as several other species of this group.

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Ohio Mycological Bulletin No. 6

W. A. Kellerman, Ph.D., Ohio State University,

Columbus, Ohio, June 24, 1903.

CONFIDENTIAL — Again it must be said that the interest in Mushrooms and the Bulletin is most gratifying. The membership in the club now has passed beyond 600. If advertisement were resorted to, the number joining in the work would doubtless mount immediately to a thousand or more—but I prefer to leave the matter of expansion in the hands of my enthusiastic members.



Fig. 27. Morchel-la an-gus-ti-ceps. Narrow-head Morel. Edible. From E. O. Longyear's Mich. Exp. Sta. Bulletin on Mushrooms.

It was thought at first that say one Bulletin a month for a part of the season might be issued; then the matter of expense would cut but a small figure. The cordial sympathy and encouragement of so many persons, eminent mycologists, professors, high-school teachers, amateurs and lovers of nature generally, have seemed to make it desirable to issue the Bulletin oftener and thus bring to the notice and assistance of all parties interested, many illustrations of our abundant and varied Mushroom flora.

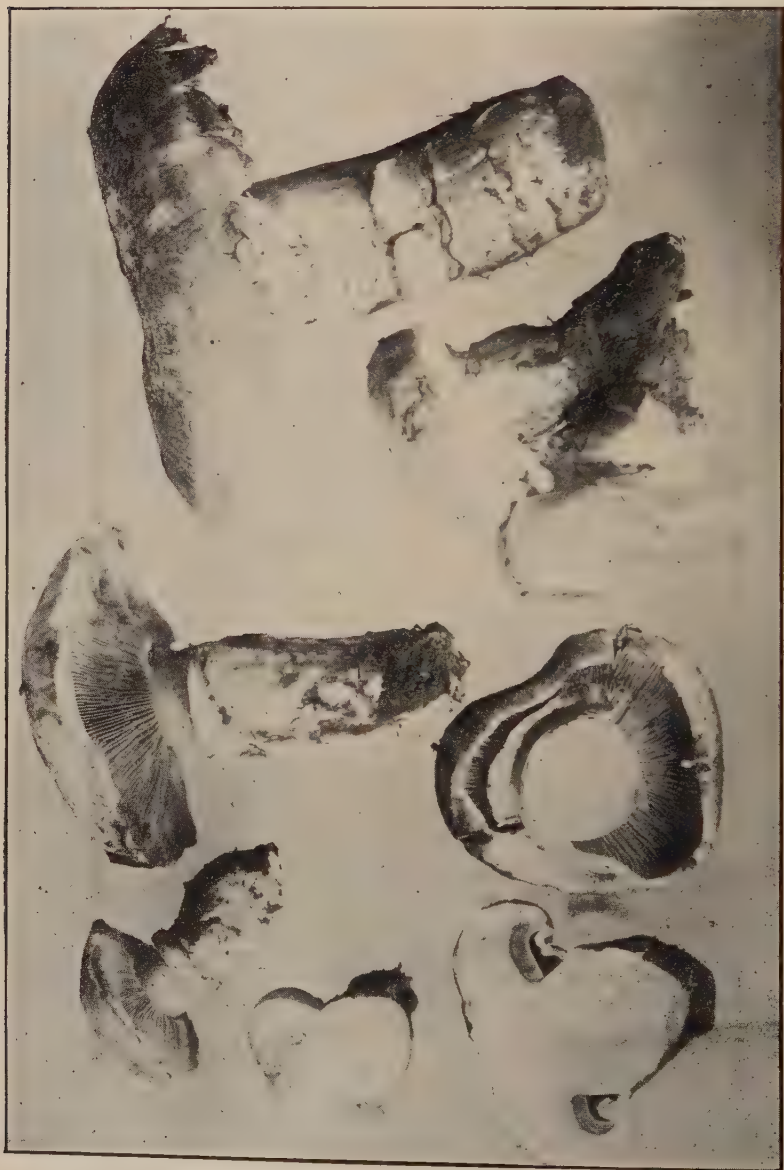


Fig. 23. *A-gar-i-cus rod-man'i*. Rodman's Mushrooms. Edible. Photo from specimens collected at Columbus, O. Closely related to the Common Mushroom (*A. conopseis*); but the stem is very short, and the annulus is very thick and double; the pileus is rounded then convex.

But to do this requires the expenditure of a larger amount of cash than most persons would suppose. Those having experience in matters pertaining to printing and engraving can readily understand that not half the cash expense is covered by subscriptions received for the Bulletin. Yet I have no intention of placing the fee higher than ten cents; this all can pay without embarrassment, and it is entirely satisfactory to me.



Fig. 29. *Lepiota cepesoides*. Onion-stemmed Agaric. Edible. Photo by Professor Beardslee who says: "it was made from plates collected in Cleveland, where it is rather common. It seemed to be partial to refuse-heaps, growing in great profusion on piles of sawdust which had been left in the woods." Occurs in greenhouses also, where (as Peck) says one form has a white and the other a yellow pileus.

However, if upon this mere hint (not solicitation), a number of persons who are interested and financially able, desire to lend a helping hand, their substantial contribution will be duly used in extending the work. Such donors will receive the cordial thanks of the editor and of every member of the Club. That we may justly render credit to whom credit is due, a list of those contributing large or considerable amounts will be printed in the Bulletin.

VACATION ADDRESS—During July and August the address of the Editor of the Bulletin will be Lake Laboratory, Sandusky, Ohio.



Fig. 30. Hel-vel'-la e-las'-ti-ca. *Helvella* Edible. Photo from specimens in woods growing on leaf-mould, Columbus, Ohio. Belongs to same family as *Gy-ro-mi'-tra brun'-na*, p. 16 (*Hel-vel-la'-ce-ae*).

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Ohio Mycological Bulletin No. 7

W. A. Kellerman, Ph.D., Ohio State University,

Columbus, Ohio, July 31, 1903.

THE ILLUSTRATIONS.—We are under obligations to Mr. Fred. J. Braendle, Washington, D. C., for cuts Nos. 31 and 32. Others by the same artist will be awaited with pleasure. The handsome Morel, cut No. 33, is taken from B. O. Longyear's Experiment Station Bulletin on Michigan Mushrooms.

PRONUNCIATION OF NAMES.—Many names will doubtless be new to readers of the Bulletin; but really they are not at all difficult—no more so than *Ge-ra'-ni-um*, or *Rhi-noc'-c-ros*. I regret that English usage



Fig. 31. *Hy-pho-lo'-ma sub-lat-er-i'-ti-um*. Edible. The spores are purple brown and there is no annulus in this genus. Cut from photo by Fred J. Braendle, Washington, D. C. The specific name alludes to the color of the cap which is nearly a brick red, sometimes tawny. The margin is lighter in color. The plant grows on old stumps or appears to come from the ground, being from buried portions of stumps or roots. Plants represented one-half natural size.

will not always allow them to be pronounced according to their etymology or meaning. For example, it would be fortunate if we could say *Myr-i-o-sto'-ma* — which means many mouths — instead of *Myr-i-os'-to-ma* which is misleading (but I should have pronounced it so on p. 19, Fig. 25!). *Bi'-spo-ra* would better tell us *two-spores* than *bis'-po-ra*; *Pol-y-po'-rus*, many pores, than *Pol-yp'-o-rus*; but the laws of evolution of language like Nature's other laws, are inexorable.



Fig. 32. *Am-an-i'-ta stro-bil-i-for'-mis*. Pine-cone *Am-an-i'-ta*. Edible. White or cinerous, sometimes yellow on the disc, rough with angular, mostly persistent warts. Many species of this genus are poisonous, but McIlvaine says it is among the best of species; it has a strong, pungent, unmistakable odor, like chloride of lime, which entirely disappears in cooking. The species of this genus (*Amanita*) have a conspicuous vol'-va, or universal veil, completely enveloping the young plant. Cut from photo by Fred J. Braendle, Washington, D. C.



Fig. 33. Mor-chel'-la bis'-po-ra. Two-spored Morel amid its natural surroundings. The cut kindly furnished by B. O. Longyear, Agricultural College, Mich., who says this is one of our earliest Morels, often appearing with the opening of the pussy willows and the advent of the early warbler. It is the rarest and most delicate member of its tribe. The pileus or cap is thimble-shaped, with the ridges running mostly from top to bottom, and it is fastened to the stem only at the very apex. Color buff or brownish yellow, white underneath. The smooth white stem is usually three or four inches tall, hollow, and often a little swollen near the base. The whole fungus is tender and fragile.



Fig. 34. *Ma-ras'-mi-us co-hæ'-rens*. Edible. Cuts from specimens collected at Columbus, Ohio. Color chestnut, light leather color or tawny. Gills and stem reddish brown, shining, due to colored *cystid'-i-a*, or spicules which can be distinguished by a lens. This elegant species grows on the ground or very rotten wood. Name used by Peck is *Col-lyb'-i-a co-hæ'-rens*, or *C. spin-u-lif'-er-a*.

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Ohio Mycological Bulletin No. 8

W. A. Kellerman, Ph.D., Ohio State University,

Columbus, Ohio, August 31, 1903.

LOOKING FORWARD. — The warm rains of late summer and early fall will bring hosts of interesting and curious Mushrooms, and all those who search in the woods and fields for these striking forms of vegetation will doubtless be rewarded with a bountiful harvest. Hoping that the BULLETIN may aid in the study of these plants, I may say that the subscriptions (and donations) so far warrant the promise of a Number each of the remaining months of the growing season. If the members will tell all their interested neighbors and friends the "price 10 cents," and both teachers of nature-study in the grades and teachers of science in the High Schools would take active interest in the matter, perhaps the treasury of the publication company would soon be overflowing, and in

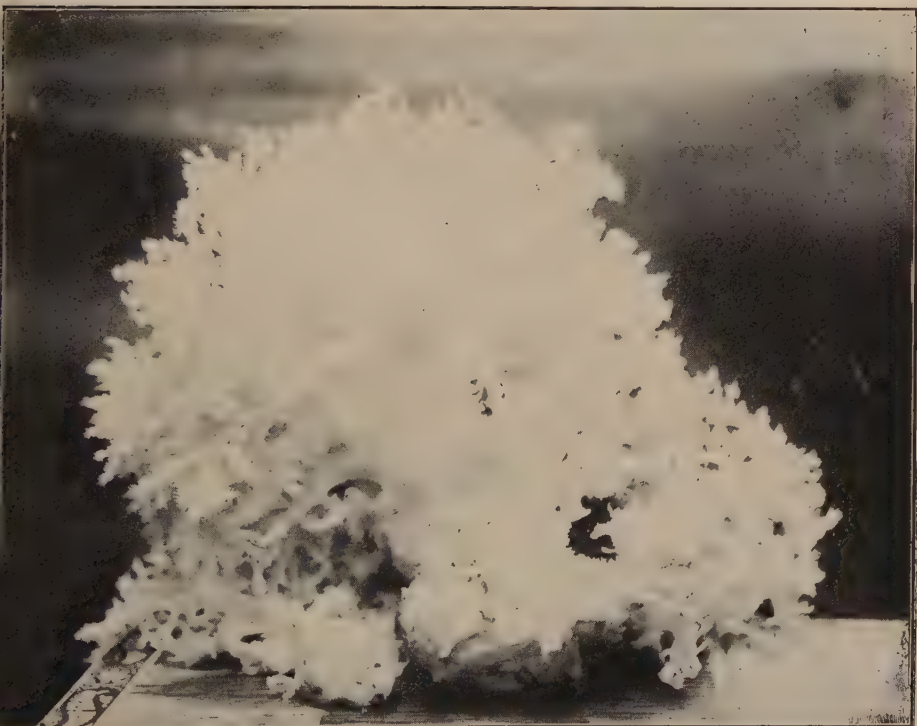


Fig. 35. Hyd'-num cor-al-loi'-des. Coral Fungus. Edible. Pure white; growing in woods on rotten logs, etc. Rather common and often quite large. Cut from a photograph taken by T. Otto Williams, Circleville, Ohio.

that case two Numbers could be issued each month. It will be the aim to figure the commoner, more interesting and striking forms, thus it is hoped rendering much service to beginners and amateurs. Photographs are solicited from members of the Club. These should show the plants natural size, or if the specimens are large the photos should be at least four inches wide in case it is desirable to use them in making cuts for the Bulletin. Thanks are extended for photographs already kindly sent.

THE HYD'-NUMS.—These curious forms are usually abundant in the woods in late summer and fall and their conspicuous spines (always pointed downwards) will reveal their character at once. This is the fruiting (spore-bearing) surface, peculiar to the family Hyd-na'-ce-ae. They are excellent for the table if taken when young and fresh. The striking photo, kindly sent by Mr. T. Otto Williams, teacher of Sciences in the Circleville High School, of the Coral Hedgehog Mushroom has been used in making Fig. No. 35. From the main stem successive branches appear and terminate in graceful shoots; from the under side of these the short spines hang. It can thus be easily distinguished from the Bear's-head Hyd'-num (*H. cap'-ut-ur'-si*) in which the spines are clustered at the ends of the thick branches. Medusa's Head (*Hyd'-num cap'-ut-me-du'-sae*), and Satyr's Beard (*Hyd'-num er-i-na'-ce-us*), differ but slightly from the preceding and will doubtless be found by all the Hydnum hunters.

THE OYSTER MUSHROOM.—This name has been given to the Agaric called *Pleu-ro'-tus os-tre-a'-tus*, because "the form of the plant sometimes suggests the outline of an oyster shell." It is a very common edible Mushroom belonging to a white-spored genus [*Pleu-ro'-tus*] of the Agarics, easily recognized by the eccentric or lateral stem; the pi'-le-us, or cap, may in some cases be attached at one side, i. e., more or less shelving, or in some species it may be *re-su'-pi-nate*, that is to say, the upper side lying directly against the wood on which the plant is growing. The species figured in this Number of the Bulletin (Fig. 38) is supposed to be *Pleu-ro'-tus sap'-i-dus*—a form so nearly like the one named above that even so eminent authority as Professor Peck suggests that it may be only a variety of the Oyster Agaric. I think it also may as well be called the "Oyster" Mushroom—because beginners and amateurs, and botanists generally, would not likely separate the two. Specific limits (if there are any here) can also just as safely be ignored by the mycophagists. The spores are tinged with lilac when seen in



Fig. 36. *Sar-co-scy'-pha oc-ci-den-ta'-le*. Western Peziza. On rotten twigs on the ground. Cup red orange within. Photograph from specimen collected at Sandusky, Ohio.

mass—but the color “seems to be the only distinguishing character and this may not be constant.”

One may expect to find in our region also the Elm Pleu-ro'-tus (*P. ul-ma'-ri-us*), so called because often found growing on the dead branches or trunks, or from wounds in living trees, of the Elm. It is not, however, confined wholly to the Elm. “It is a large species,” as Atkinson says, “easily distinguished from the Oyster Agaric and the other related species by its long stem attached usually near the center of the cap, and by the gills being rounded or notched at their inner extremity.”

Another interesting *Pleurotus* is the Petal-like Agaric (*Pleu-ro'-tus pet-a-loi'-des*), fine specimens of which were found at Columbus in the spring, growing by the sidewalk, apparently from the ground but in reality from rotten wood underground. It grows also on fallen branches and trunks and on stumps. The plant is usually ascending or nearly upright in position, somewhat spatulate in form or broad above and tapering downward into a short stem. The margin is at first turned inward. The color may be white, but is also sometimes pale reddish or brown. A peculiar character serving well to make the identification of this small species quite certain, is the *fuzzy* appearance of the gills when looked at with a pocket lens, or even with sharp eyes. It is due to the presence of numerous enlarged cells of peculiar form, called the *cystid'-i-a*.

PE-ZI-ZA'-CE-AE. — The interesting *Pe-zí'-za* Family has already been referred to (p. 15) and some figures given. We include in this Number two cuts of charming forms that botanists place in this group. While they are too small to be favorably regarded from the esculent point of view, they could not go unheeded by those who notice the peculiar growths and beautiful colors in nature. These and other species may be found in shady woods that have not been despoiled by the demands of agriculture and other destructive industries of civilization. The brilliant cups of *Pezizas* Fig. 36 and 37, nestled in bright green moss and delicate fern, might form a center-piece for the dining table that would complement the pleasure of the delicious viands. Their aesthetic use justifies the encroachment we make on the space of the Bulletin pages, though of course half-tones illy show them—expensive colored figures might almost do them justice. The *Pezizas* retain their shape and bright color equally long, even longer than the best bouquets of flowers—proper moistening or protection from excessive evaporation enhancing their period of usefulness.

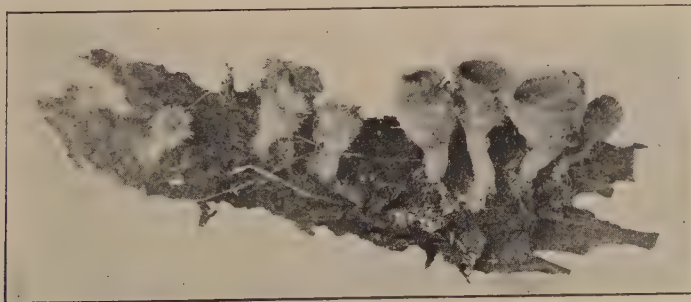


Fig. 37. *Sar-co-scy'-pha flo-c-co'sa*. Floccose *Peziza*. On rotten branches on the ground. Cup bright red within and surrounded by long, white hairs. Stem and outside of cup whitish. Photograph from specimens collected at Sandusky, Ohio.



Fig. 38. *Pleurotus sap'idus*. Oyster Agaric. Edible. On dead trunks and branches, or dead portions of living trees. White, but the color may vary to yellowish, gray, brownish, or lilac. Spores white or tinged with lilac, as seen in mass when caught on paper. Photo from specimens at Cedar Point (Sandusky), Ohio.

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Ohio Mycological Bulletin No. 9

W. A. Kellerman, Ph.D., Ohio State University,

Columbus, Ohio, September 30, 1903.

NOTES.—The Jack-my-Lantern fungus or as the learned call it, Cli-toc'-y-be il-lu'-dens, has been sent oftener than any other species, and the belief is often expressed that it would be good to eat. Unfortunately

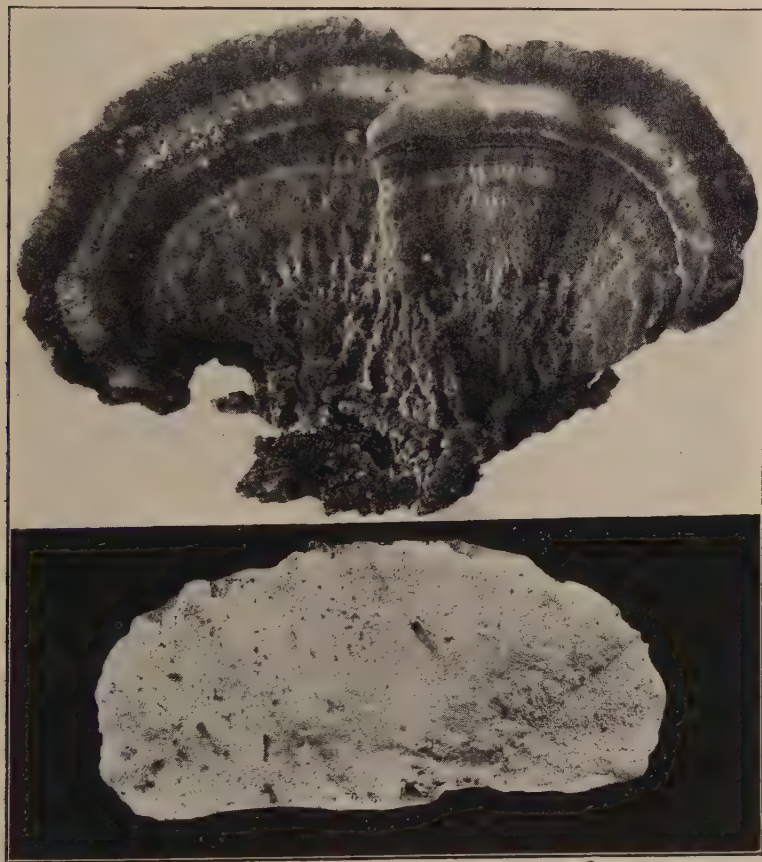


Fig. 39. Hairy Poly'porus. Po-ly-stic'-tus hir-su'-tus. A very common but tough species, easily recognized by the dense coating of hairs on upper surface. Both upper and lower surfaces are shown in figure; from photograph of specimens collected at Columbus.

this attractive species is *not edible*. It is a conspicuous yellow Toad-stool, a gill-fungus that grows most commonly about old stumps or dead trees or rotting gate-posts. The color throughout in young specimens is a rich saffron yellow, but in old plants the color becomes sordid or brownish. The stems may be three-fourths inch in diameter or thicker, and the plants eight or ten inches high. This interesting point can be easily verified, namely, that the gill-portion (or under side of the cap) is phosphorescent, *i. e.* luminous after dark; take a fresh young specimen to the house and in a dark room the experiment can be tried. This species is abundant in the summer and early fall.

Supt. J. N. Baker reports a Puff-ball at Bowling Green 14 inches in diameter. The dimensions of a *Po-ly'-po-rus sul-fu'-re-us*, the Sulphur-colored Pol'-ypore, "27 inches across the top, 16 inches deep and 7 or 8 inches thick, weight about 16 lbs.," are reported by Miss Myrtle Leighley, Hartville, Ohio.

Mr. Willis H. Ropes, member of the Boston Mycological Club, says "last Monday we had eighty-eight varieties on the plates" at Salem, Mass., where Mushroom exhibitions and lectures are being held.

Two unusual specimens of the *Col-lyb'-i-a rad-i-ca'-ta* were found in a woods near Sandusky during the summer. They were growing on a rotten log — an unusual habitat. The "root," *i. e.* lower tapering end of the stem, could not penetrate the rather firm though very rotten wood and therefore had not at all developed; it was a "root-less" *rad-i-ca'-ta*. The other specimen had developed its "root" — but it was turned at a right angle following the surface of the matrix on which it rested. This neat edible species is a very common one, its root-like stem below being very characteristic; we hope to have a half-tone of it in the BULLETIN later.

NEXT YEAR. — Thanks are extended to all who have taken interest in the BULLETIN and mycological matters in general, and now also especially to those who have kindly sent the subscription for 1904! I have lately persuaded myself to say that the BULLETIN will be issued on the same basis next year, "price 10 cents." This amount pays but a portion of the cash expense, but the generosity of interested "persons with means" will doubtless enable me to defray all costs. Some friends in foreign countries have requested the copies as issued, and for them I am obliged to fix the price at 25 cents, to cover postage. Those sending 10 cents now will receive all the 1903 Numbers issued — as long as copies are available. The above announcement has been called forth prematurely — though the contribution box is already open; other numbers of the BULLETIN will appear this year.

THE POL'-Y-PORES, or PORE-FUNGI. — This large group is called *Pol-y'-po-ra-ce-ae* (sound the "y" like short "i"), because there is a honey-combed fruiting surface on the lower side of the plants; in other words, there are *many pores*, which is the real meaning of the name of the group. They are also called Bracket-fungi or Shelf-fungi, alluding to the general form and method of attachment to trees, logs and stumps, where most of the species are to be found. They are the commonest of all fungi and everyone who ever went to the woods has seen them. The cuts shown will give a fair idea of some of the striking forms — but the subject will be taken up in a later BULLETIN.

It should perhaps be explained at once that the name of the group is formed from the name *Po-ly'-po-rus* which was given to these characteristic plants by the early botanists. In 1851 Fries broke up the group (*ge'-nus*) into three *gen'-er-a* (this is the plural for *ge'-nus*), using the names for them as follows: *Fo'-mes*, *Pol-y-stic'-tus* and *Po'-ri-a*.

Now other ge-ner-ic names are coming into use as Gan-o-der'-ma, Py-ro-po-ly'-po-rus, Scu'-ti-ger, Po-ro-dis'-cus and goodness knows how many others. However, we will leave all these to the refined botanist, and use Po-ly'-po-rus as a common name for the whole lot.



Fig. 40. Beech and Birch Poly'-porus. Fo'-mes fo-men-ta'-ri-us. A woody species very abundant on old trunks of Birch and Beech trees—sometimes on other hosts. The plant is perennial—the annual layers showing very plainly in the large specimen. The cut was made from photographs of specimens collected in the mountains of West-Virginia, where it is one of the commonest species on the Yellow Birch. Being a hardy, woody species, it is of course not edible. It is a conspicuous and easily recognizable *saprophyte* (i. e. living on dead organic matter). It is not known to grow on living trees—in other words, it is never a *parasite* as a few of the Polypori are now known to be.

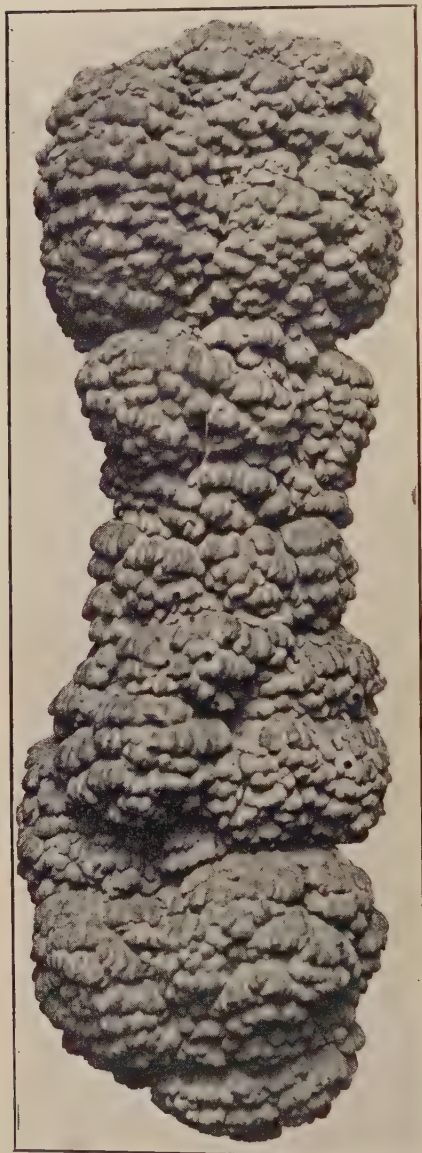


Fig. 41 Thatched Polyporus, or Thatched Pol'y-pore. Fo'-mes grav-e-6-lens. A remarkable woody species, mostly subglobose or polyccephalous; elongated on standing trunks. When fresh, has a strong, disagreeable odor, hence the specific name. It was formerly called *P. con-glo-ba'-tus*. From photograph of specimen collected by L. F. Cheney, at Pricetown, Ohio.

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Ohio Mycological Bulletin No. 10

W. A. Kellerman, Ph.D., Ohio State University,

Columbus, Ohio, October 30, 1903.

NOTES.—One more Bulletin will be issued this season, some time in November. At that time or later a Title-page and Index will be furnished, closing Volume I. Only a few copies of this set or Volume (for 1903) are left and therefore you should not ask your friends to become subscribers for the *current year*, but I will be pleased to have their names for the 1904 list. The Bulletin will be issued next year and sent to all members for the same price as heretofore, namely, *10 cents*.

But I wish to issue twice as many Numbers next year—and therefore the expense will be greatly increased. Besides, the cash cost of the Bulletin for this year has not been fully met by the fee—and it was not expected that it would be wholly met. Some friends have assisted and I take pleasure in donating a mite now and then to the cause myself.

I am prompted to keep (privately) a regular Cash Donation List—to the end that those *who are able and interested may enjoy* additional pleasure with me. Such a list is now begun, and \$20.00 is the first amount put down! But a child's penny, or nickel from the school boy, or larger amounts from others, will be gratefully accepted, and all that is received



Fig. 42. Pa'-nus dor-sal'-is. Dorsal Pa'-nus. An elegant species but somewhat tough and leathery. It grows on stumps and trunks—conspicuous by reason of its tawny-orange color. Photograph from specimens collected at Columbus, Ohio.

Entered as Second Class Matter, Post-office at Columbus, O.

will be devoted to the cash expense involved in making the Bulletin as useful as possible. The membership fee will be in 1904, as now, 10 cents, and all members will receive the Bulletin as issued. A new list of members will be prepared for 1904. The books are open now.

PAMPHLET.—Attention should be called to the fact that certain Reports of the New York State Museum are offered for sale. For example, the interesting and valuable "Report of the State Botanist for 1901," by Charles H. Peck, contains (besides technical matter) popular descriptions of eleven species of Edible Fungi accompanied by plates. This report can be obtained for forty cents. (Report for 1902, fifty cents.) Address, Director New York State Museum, Albany, N. Y.

GALL.—A gall on a Mushroom is something out of the ordinary, apparently never reported heretofore in mycological literature,—and yet this is what is described and figured by Charles Thom in the September No. of the Botanical Gazette. The gall was on the pileus of the common little *Om-pha-li-a cam-pan-el-la*. The pileus is ordinarily less than one millimeter in thickness, or together with the gills less than three millimeters. The white mass of the gall, homogeneous in section, was about eight millimeters in radial diameter, six millimeters in thickness, and twelve to fifteen millimeters in length.

ACCENTUATION OF NAMES (A PARAGRAPH FOR STUDENTS).—In the October No. of the Journal of Mycology, Miss Ivy Kellerman explains the "apparent dogmatism" in the matter of accentuation of compound names, and possibly brief instructive transcripts may not be "all Greek" to every one. She says: "There are certain Indo-European laws of accentuation which are seen to be distinct from changes occurring in the individual languages. One of the most general of the laws pertaining to nouns and adjectives may be stated as follows: Compounds, consisting of one word dependant upon another in a grammatical relation, keep the accent of the dependant word for the accent of the compound as a whole. The survival of the law to the present time is shown by such examples from the Teutonic branch as English *puff-ball*, *apple-tree*, *black-berry*, or German *äpfel-wein*, *sönnen-blume*, *blau-beere*. From the Balto-Slavic branch may be adduced Lithuanian *vasará-sziltis* "summer warmth," and *sáulzhole* "heliotrope," and Russian *né-vidko* "not to be seen." A moment's consideration will show how logical this law is. The dependant word, usually an adjective, or a noun in a case relation, brings a new idea or broadens the one already present in the word to which it is united, and so it naturally receives the greater amount of stress. The rule holds whether the dependant element precedes or follows the foundation word. . . . In Greek, however, which is of especial interest to the botanist, certain changes took place. A law developed that no accent might recede farther from the end of a word, either simple or compound, than the third syllable from the end. This is the case if the quantity of the last syllable be short; if it is long, the accent may recede only as far as the second syllable from the end. It will at once be recognized that this secondary law often shifts the accent of the emphatic word in a compound to a different syllable from the one upon which it originally rested. For instance, *myríó-stóma* would in prehistoric Greek have become *myríó-stoma*, like the Sanskrit *sáhasra-mukha* of almost the same meaning quoted above. But, in the earliest records we have, Greek had already completed the shifting due to the law of recessive accent, and therefore we find *myríó-stoma*. So also *cary'o-sporá*, if it had occurred in early Greek, would have been *cary'o-spora*. . . .

When the foundation word is more than three syllables in length, or has a long final syllable, it is evident that the law of recessive accent must withdraw the emphasis completely from the preceding dependant word. An example of this is *poly-céphalum*, which would have been *poly'-cephalum* in prehistoric Greek, from the elements "poly" and "céphalé," which naturally had to undergo such a compromise when they became united into one word."

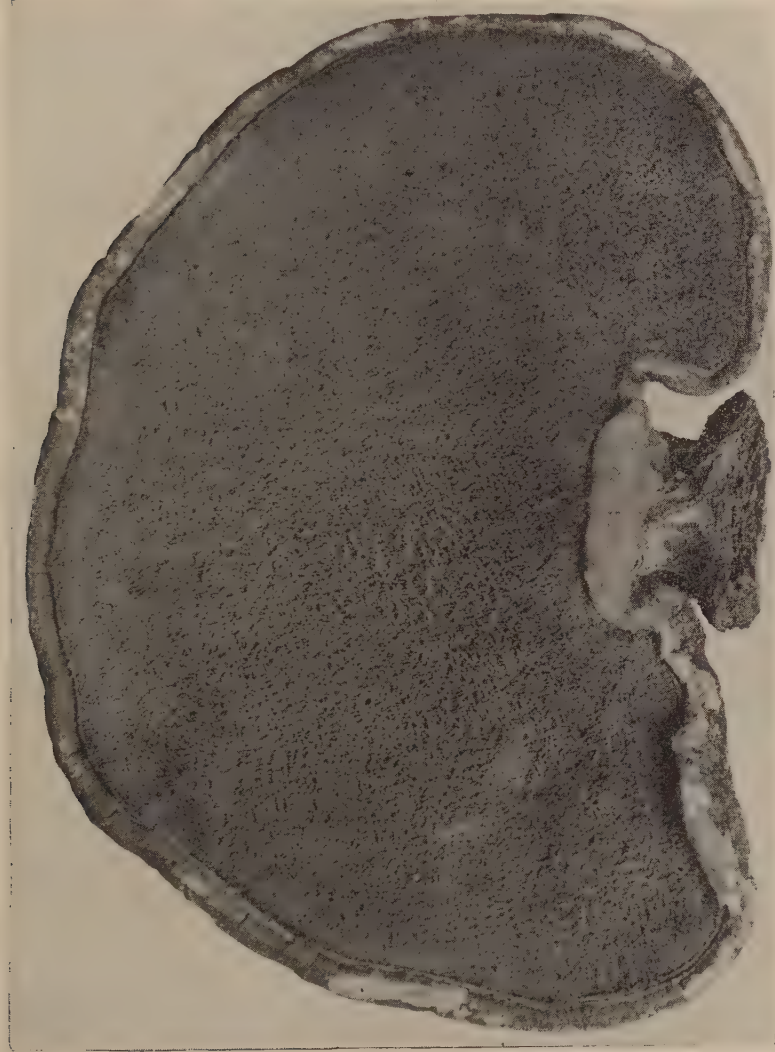


Fig. 43. *Po-lyp'-o-rus bet-u-li'nus*. [More recently written *Pip-to-po'-rus sub-e-ro'-sus*.] Birch Pol'-ypore. Leathery or rather woody. Photograph from a herbarium specimen collected by C. F. Baker in Wisconsin in 1897. The fungus measured six and a fourth by nine inches. The cut has been reduced to about five ninths of these measurements, and therefore the pores on the lower surface are not distinct; even the peculiar conspicuous elongated hair-like scales attached to the pore-surface are not clearly represented in the half-tone.



Fig. 44. Bul-ga'-ri-a in-qui'-nans. Black Pe-z'i-za. A tough-fleshy dull-black species growing on rotten sticks in leaf-mould in shady woods. Perhaps scarcely palatable — though the fragile Pe-z'i-zas are excellent food. Photograph from specimens collected at Sandusky, Ohio.

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The Ohio Mycological Bulletin is issued from time to time and sent to all members of the Ohio Mycological Club. All eligible to membership who are interested in Nature or the Bulletin. Fee, 10 cents.

Ohio Mycological Bulletin No. 11

W. A. Kellerman, Ph.D., Ohio State University,

Columbus, Ohio, November 20, 1903.

END OF VOLUME I.—With the current issue, accompanied by title-page and index (Bulletin No. 12), the first year of publication of the *Ohio Mycological Bulletin* is brought to a close. Started as a mere ex-



Fig. 45. *Len-ti'-nus vul-pi'-nus*. This was kindly identified by Professor Morgan, who calls attention to the inaccuracies in descriptions by botanists and remarks that it is an "uncertain species anyway." All of the species belonging to *Len-ti'-nus* are leathery or tough, or if fleshy, hardened when mature. The elegant specimens from which the cut was made were found on a log in moist woods near Columbus, Ohio.

periment and for the pleasure and benefit of a few persons, it has grown into a periodical of considerable popular interest—the large, mostly unsolicited membership, perhaps, warranting such a statement. The text offered, no less than the syl-lab-i-fi-ca-tion and ac-cen-tu-a-tion used, has undoubtedly justified the claim that this Leaflet is primarily intended for children in years and children in knowledge. It is hoped that the numerous pictures of mushrooms have afforded both pleasure and profit. Heartly thanks are extended to all who have taken interest in this matter, and special obligations are again expressed for the numerous specimens, notes, sketches, and photographs kindly sent to the editor. A special request is made that all subscribers forward at once the fee, ten cents, for the *Bulletin* for 1904. No. 13 (first number for 1904), will be sent out during January or early in February. It would be much appreciated if members would kindly send subscriptions for some of their friends, or take opportunity to call attention to the *Bulletin*. The frequency of issue during the year will depend on the financial receipts—and let us hope that two copies a month may appear during the Spring and Fall, when mushrooms more conspicuously abound.

MEMBERSHIP OF THE OHIO MYCOLOGICAL CLUB.—The list of members the current year reached the surprising number of *seven hundred sixty-five*. An inspection of the published lists reveals the fact that equal interest in mushrooms is to be credited to children, pupils, teachers, students, amateurs, professional botanists and mycologists. It will be a reciprocal benefit if the roll of members is largely increased for next year. The experience of some of the high school teachers warrants a special suggestion that classes in botany can advantageously devote a portion of time to the higher fungi and that the *Bulletin* would be a material aid.

BACK NUMBERS OF THE BULLETIN.—It is most unfortunate that a considerable demand for this Leaflet could not have been foreseen. Practically all of the first Numbers are exhausted. The price of the few complete copies of Volume I must be placed at 50 cents—the proceeds to apply on Bulletins for next year. A larger edition will be issued hereafter.

PORTRAIT OF AN EMINENT MYCOLOGIST.—It is with special pleasure that I print as a worthy frontispiece to Volume I, a portrait of Professor Charles H. Peck, of Albany, New York, to whom, far above all others, we owe our extensive knowledge of the Mushrooms of the United States. His numerous illustrated reports as State Botanist of New York are as admirable as useful. It is fortunate that some of them are now placed on sale by Mr. Fred. J. H. Merrill, Director of the New York State Museum, Albany, N. Y.

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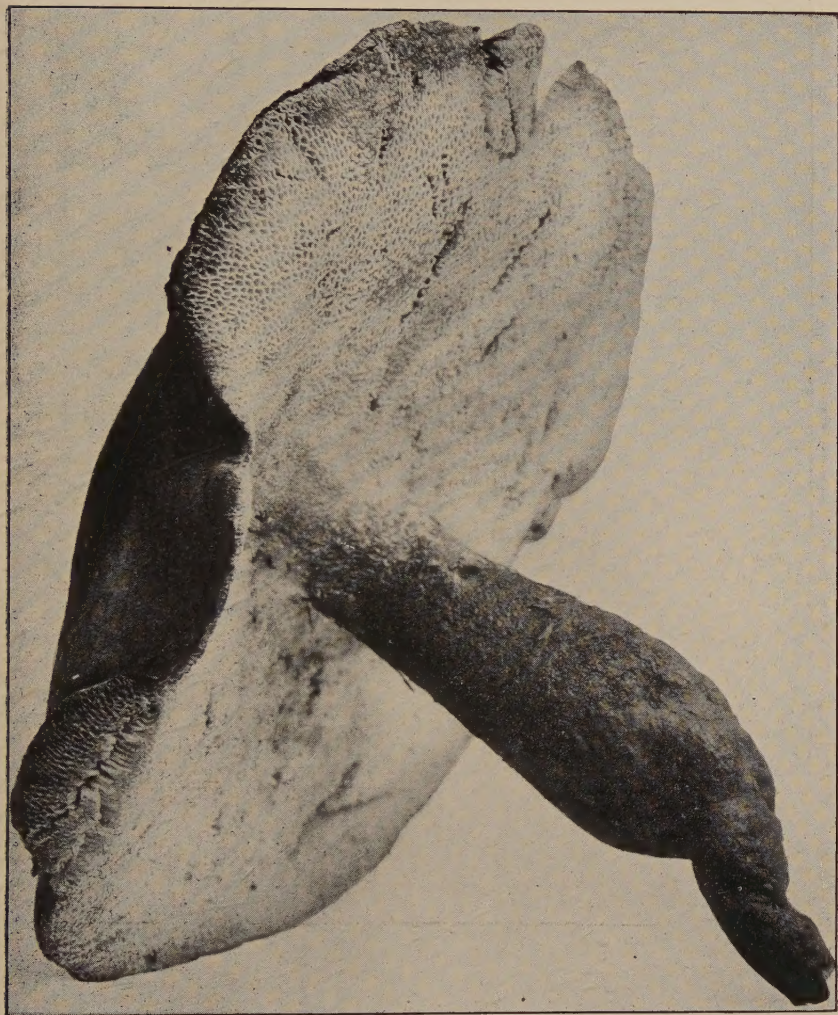


Fig. 46. Po-lyp'-o-rus rad-i-ca'-tus. Root Polypore. This is a fleshy-tough plant, with a stem (called stipe) *ec-cen-tric*, that is, not attached to the center of the cap. The majority of the commoner Polypores are "shelf-fungi"—not having a stem, but attached directly to sides of tree trunks, stumps and logs. Figs. 39, 40, 41 and 43 are illustrations of such forms: they are hard leathery or woody plants. The Po-lyp'-o-rus rad-i-ca'-tus has a long, tapering rootlike stem, black below. Morgan says: "I find this plant, as Berkeley says, of various sizes, from the small plant which Schweinitz describes, to five inches or more across with the stipe six inches or more in length; the long, tapering stipe penetrates the earth to a depth of several inches, the tip being always attached to some portion of an old root. The pileus is brown or blackish." The cut, original with Prof. H. Garman, was used first in Bulletin No. 96, Kentucky Agricultural Experiment Station.



Fig. 47. *Hydnum pulcherimum*. Professor Morgan, to whom a sample was sent, says: "It is a very fine specimen! It is usually quite irregular and mostly resupinate." The Latin specific name means *most beautiful*. The descriptive word *re-su-pi-nate* means applied directly to the log or sub-stratum, the spine-surface only showing. The upper figure showing the lower surface of the fungus is considerably reduced; the lower is a section from same specimen. Photograph from specimens collected at Columbus, Ohio.

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Ohio Mycological Bulletin No. 12

W. A. Kellerman, Ph. D., Ohio State University.

Columbus, Ohio, November 21, 1903.

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